



Eureka Mills

Eureka, Utah

Risk Assessment

FACT SHEET

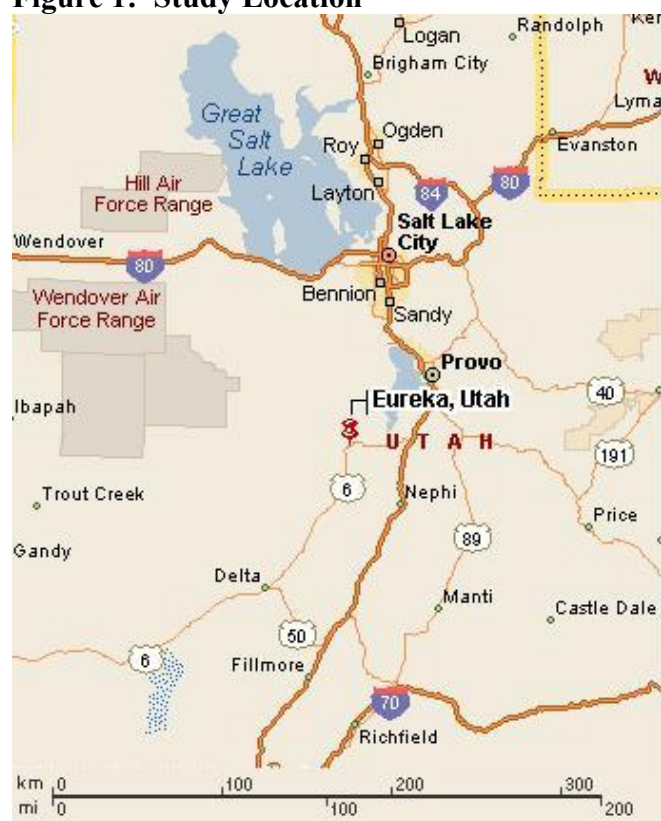
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Site Background

The town of Eureka, Utah, is located in the East Tintic Mountains approximately 70 miles south of Salt Lake City and 40 miles southwest of Provo (Figure 1).

Figure 1: Study Location



Historically, the Tintic district was the second-most productive base- and precious-metal mining district in Utah. The district was discovered in 1869. A smelter and a number of mills were built between 1871 and 1902. Milling and mining activities were conducted in the area until 1965. Large waste piles resulting from these operations are common landscape features in and around the town of Eureka.

In July 2000, the Utah Department of Environmental Quality collected a limited number of soil and sediment samples from multiple locations around the Eureka Mills

Site. Elevated concentrations of lead were observed in site soils. These values are well above the U.S. Environmental Protection Agency's level of concern for residents, and occur in close proximity to residents of Eureka. EPA has determined that a threat to human health and the environment is present at this site. As a result, EPA began a Removal Evaluation at this site on August 28, 2000.

Baseline Risk Assessment Process at Eureka Mills

Risk assessors decide whether the hazardous substances at a site present a danger to human health and the environment. A baseline risk assessment helps the risk assessors estimate current and possible future risks to human health and the environment. Risk assessors make this determination through a four-step process. EPA uses the results of a risk assessment to develop a cleanup strategy.

STEP 1: Data Collection and Evaluation at Eureka Mills

EPA collected samples during August and September 2000 from soil, dust, paint and tap water at residential and non-residential areas in and around Eureka. Table 1 shows the metals in soil and tap water that were evaluated in the risk assessment.

Table 1: Chemicals of Potential Concern

Chemical	Soil	Tap Water
Antimony	X	
Arsenic	X	X
Cadmium	X	X
Iron	X	
Lead	X	X
Manganese	X	
Mercury	X	
Silver	X	
Thallium	X	

STEP 2: Exposure Assessment at Eureka Mills

After the risk assessors collect and evaluate the data, they look at ways people might be exposed to any chemicals of concern. Exposure may involve breathing, touching, or consuming contaminated air, water, or soil.

Table 2 presents the different human exposure scenarios identified as potentially of concern at Eureka Mills.

Table 2: Human Exposure Assessment

Location	Population	Medium and Exposure Route
Residential Areas within Eureka	Current Residents	Incidental ingestion of soil and dust Ingestion of tap water
Non-Residential Areas	Hypothetical Future Residents	Incidental ingestion of soil and dust Ingestion of tap water
	Recreational Visitors	Incidental ingestion of soil and dust

STEP 3: Toxicity Assessment

The risk assessors look at the toxicity, or harmfulness, of each chemical of concern to determine what kind of health effects may result from various levels of exposure to hazardous substances. Both the cancer and non-cancer effects for each substance are evaluated.

The likelihood of cancer is expressed as a probability. For example, a “1 in 10,000 chance” means that for every 10,000 people exposed to the contaminants, one extra cancer may occur beyond what would be expected from all other sources.

The likelihood of non-cancer effects is described in terms of the ratio of the amount at the site divided by the amount that is believed to be safe. If this ratio is less than or equal to a value of 1, it is believed that there is no significant risk that non-cancer health effects will occur. As the ratio increases, the risk that non-cancer health effects may occur becomes greater. Non-cancer health effects can range from rashes, eye irritation, and breathing difficulties to organ damage, birth defects, and death.

STEP 4: Risk Characterization

Risk assessors combine the results of the first three steps and come up with an estimate of the risks posed by the site. The risk assessors are careful to make sure the risk characterization does not underestimate the risk posed by the site. EPA uses the risk characterization to develop a cleanup strategy.

Risk Results

The main findings of the baseline human health risk assessment for Eureka Mills are presented in Table 3.

Table 3: Potential Human Health Risks from Incidental Soil Ingestion

Chemical(s)	Type of Risk	Residential Areas	Non-Residential Areas	
		Residents	Recreational Users	Potential Future Residents
All Non-Lead	Cancer	●	●	●
	Non-Cancer	●	●	●
Lead	P10>5%	●	●	●
KEY ● Risks exceed a level of concern at all areas sampled. ● Risks are at or above a level of concern at some areas sampled ○ Risks are not a concern.				

Non-Lead Chemicals

At residential areas, risk calculations suggest that incidental soil ingestion may result in excess cancer and/or non-cancer risks to current residents. At non-residential areas, risks were evaluated for recreational users and hypothetical future residents. For recreational users, risks from exposure to non-lead chemicals are above a level of concern at all areas evaluated. For hypothetical future residents, elevated risks were predicted at all evaluated exposure areas, indicating that adverse effects could occur to residents if these areas were to become residential properties.

In both residential and non-residential areas, the majority of these risks are due to elevated concentrations of arsenic from soil ingestion.

Risks from consumption of non-lead chemicals in drinking water were evaluated for residential areas and were found to be below the level of concern.

Lead

The USEPA has identified 10 micrograms per deciliter (ug/dL) as the blood lead level at which adverse effects begin to occur. It has set a goal that there should be no more than a 5% chance that any child will have a blood lead value above this level (P10<5%). Risks from lead exposure were evaluated at this site using both modeling approaches and direct blood lead observations. Using the IEUBK model, EPA estimated that approximately 100% of the properties evaluated within Eureka and the outlying non-residential areas exceed this guideline. This prediction of elevated blood lead levels is supported

by findings of the blood lead investigation, in which 34% of the blood lead samples collected from children age 0-6 years were found to exceed 10 ug/dL.

How Are the Risk Assessment Results Used?

EPA believes the risk assessment is more likely to overestimate actual risks than underestimate them. This helps ensure that human health and the environment are protected. EPA looks at state and federal regulations, technology alternatives, costs, and community acceptance, as well as the risk assessment, to make cleanup decisions.

EPA will use the results of the risk assessment to determine what should be done to cleanup the contamination in Eureka. A "Proposed Plan" will be

prepared which will describe: 1) the soil contamination and where it is present in Eureka and 2) the alternatives that EPA evaluated to cleanup the contamination. The "Proposed Plan" will be available for the public to review and provide their comments to EPA during a 30-day public comment period. A public meeting to explain the "Proposed Plan" will be held during the public comment period.

After the close of the public comment period, EPA will consider the comments received before it selects the cleanup alternative for Eureka. When EPA selects the cleanup alternative, it will prepare a "Record of Decision" that will explain its reason for selecting the cleanup alternative. EPA will then proceed with planning and preparations for conducting the cleanup.

For More Information

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